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delinquent classes, is full of interesting details. The number of males confined in prisons and work-houses in the United States in 1880 was 53,604, and of females, 5,005. The number of prisoners to each million of the population was 1,069: in 1870 it was but 853. There were 1,833 insane persons, 1,533 idiots, and 976 blind persons to each million inhabitants. There were 21,595 out-door paupers, and 66,203 inmates of almshouses, during the census year.

—A writer in the August number of the *Nineteenth century* begins an interesting discussion on the question, 'Are animals happy?' The view that the author takes practically amounts to saying that an animal with a less highly organized brain is more apt to be happy. While many of his inferences are suggestive, they are not founded on that broad knowledge of biological facts which the subject deserves. The article has been severely criticised in English periodicals.

—It has recently come to light that the state of New York, in 1806, paid to John M. Crous a thousand dollars for a remedy against hydrophobia which he considered infallible. The measure was advocated by DeWitt Clinton and Chancellor Kent. This remedy consisted of one ounce of the jaw-bone of a dog, burned and pulverized; the false tongue of a newly foaled colt, dried and pulverized; and 'a scruple of verdigrease,' raised on the surface of old copper by laying it in moist earth. The warrant of the comptroller on which the money was paid, and the receipt of Crous, are on file with other state papers at Albany.

—The submarine torpedo-boat briefly described in *Science* recently is having some changes made in its machinery and in details of construction. It will be equipped with horizontal rudders at the bow, in addition to those at the stern, so that it may be submerged with an 'even keel.'

—One of the amateur aeronauts whose experiences are recorded in the September number of the *Century* makes the interesting observation, that, immediately upon alighting, all remembrance of the events of the journey is gone, and only after several hours can he recall his experiences. He adds, that after a battle, soldiers have experienced the same phenomena.

—The temperature of August, 1886, was over four degrees above normal in Iowa, being the hottest on record for over twenty-five years, excepting August, 1881, which was one degree warmer still. The number of hot days on which the temperature reached or exceeded 86° was twenty-one, which is the highest ever recorded, being three in excess of August, 1881.

LETTERS TO THE EDITOR.

**.*Correspondents are requested to be as brief as possible. The writer's name is in all cases required as proof of good faith.*

Barometer exposure.

MR. CLAYTON'S last letter on the above subject shows that he has been considering all along the so-called 'serration effect.' It seems to me that this narrows down the problem very materially. Kindly allow me space to emphasize a point or two that I laid down in my previous letter, and to give a few facts regarding the above effect. I still think, that, if the wind has a tendency to diminish the pressure in a room by blowing across a chimney communicating with it, there will be a slight draught up the chimney, of the air forced into the room on the windward side. Mr. Clayton's theory of a smoky chimney is satisfactory only as a theory, but the facts are all against him. Any builder will tell him that a properly constructed chimney will draw under the conditions mentioned by him; namely, 'wind blowing across it.' He will also find a large number of cases in Boston where chimneys have been built up in such a way as to make the effect suggested by him a maximum; and this, too, to obviate a lack of draught.

I have studied the above serration effect with some care, and have compared wind-velocity and barograph sheets for nearly two years. The barograph is enclosed in a rather tight case, and its sheet has a motion of about .75 of an inch per hour. The highest wind noted was 36 miles per hour, though there may have been momentary gusts reaching 50 miles per hour. The effect was noticed rather faint with a velocity of 4 miles per hour. Several times a velocity of 28 miles per hour produced no effect; and velocities of 20 miles per hour, with no effect, were quite frequent. Almost all the cases occurred with relatively low pressure, and they were often mixed up with the irregular fluctuations so often noticed at the centre of a cyclone. The maximum effect below the middle line was about .010 of an inch, with a mean value of about .005 of an inch. One singular fact noted was that often there would be a jump of .010 of an inch above the general trend of the line of pressure. A part of this might be caused by the momentum of the pencil, but this would be very slight. It would be very interesting to try the effect of opening a window to windward while the serration effect is taking place. I believe this has already been done to some extent, with the result that the serrations are not materially changed. At all events, I find that among those who have studied the problem in the light of these barograph sheets, there is a well-established belief, that while the wind has an influence in producing the serrations, yet just how it acts is problematical. Any such serration effect by the wind as .100 of an inch below the general pressure line is well-nigh incredible. I am so strongly convinced on this point, that I am perfectly willing, for the benefit of the readers of *Science*, to be at a little expense in order to enable us to see this effect for ourselves. If Mr. Clayton will make a tracing of one of his best effects, and send it to *Science*, I will furnish the editor with the funds necessary to reproduce it. I impose but two conditions, and will modify these if Mr. Clayton thinks them too severe. The conditions are, 1°, the chimneys or trap-doors of the house, or connecting with the room, where the barograph is, must be near the centre of a rather flat roof, that is, not at the edge or near the

ridge-pole of a rather steep roof; 2° , the tracing must exhibit the serration effect for at least one hour, and must have in that hour not less than two downward motions of the pencil at least .050 of an inch below the general trace of the pressure at the time.

GAN.

Sept. 10.

'Communistic leanings.'

In your reports of papers read at the Buffalo meeting of the American association for the advancement of science, you refer, in the following terms (*Science*, Sept. 3, p. 219), to a paper read by me before the section of political economy and statistics: "The theory of rent and its practical bearings was discussed by Edward T. Peters of Washington, and with such communistic leanings as to meet little approval."

This language is calculated to convey to the reader's mind an entirely erroneous idea of the paper referred to. That it is not based upon knowledge will appear from the fact that the title quoted is one which I submitted when my paper was only in part written, and for which I afterwards substituted a title better suited to the narrower ground to which, on the score of time, I found it necessary to confine myself. That title, as may be seen by referring to the programme of proceedings for Aug. 24, was 'Errors in the Ricardian theory of rent.' In the treatment of this subject I was not conscious of any 'leanings' except a leaning to scientific truth, my paper being simply an attempt to determine whether certain propositions embraced in the Ricardian doctrine logically flow from the assumptions upon which the doctrine is supposed to be founded, and also to compare them with certain very conspicuous economic phenomena, in order to ascertain how far the theory agrees with the facts of experience.

I will not ask space for a statement of my views on the general subject in question; but it would interest me to know whether *Science*, which may be supposed to appreciate the significance of words, and to use them responsibly, — which, moreover, has of late done itself honor by the breadth of its hospitality to various shades of economic thought, — would stigmatize as 'communistic' the proposal of John Stuart Mill "to intercept by taxation for the benefit of the state the unearned increase in the rent of land;" whether it would apply a like epithet to the proposal of Dr. Adolph Wagner, the distinguished professor of political economy in the University of Berlin, "that municipalities [I quote from 'Land and its rent,' by President Walker] should purchase all town property, in order to realize therefrom the progressive increase of values;" or, finally, whether the character of an opinion, and the epithets fitted to describe it, depend entirely on the degree of prominence of the person from whom it emanates.

I observe, in the first paragraph of your report of the proceedings of Section I, the statement that the section had, at the Buffalo meeting, "been comparatively free from the attacks of socialistic and economic cranks, to which it is especially subject." I trust it will always be successful in keeping off 'cranks' of every description; but I quite as earnestly hope that no sickly fear of giving audience to unpopular opinions will induce it to set up a narrow philistine standard of economic orthodoxy, and brand as 'communists' or 'cranks' all who fail to conform to it. The 'approval' of a body conducted upon such principles could be readily dispensed with.

Political economy, as Prof. H. C. Adams, in one of the excellent economic papers recently published in *Science*, has well said, might be appropriately defined as the science which 'treats of industrial society.' Its especial province is, therefore, in a large degree, the arena of clashing interests; and unless Section I of the American association proposes, as a section of 'economic science,' to enact the play of Hamlet with the part of Hamlet left out, it must always, from the very nature of its functions, be 'especially subject' to the introduction of disturbing social questions, and must often hear views advanced which, however sound in themselves, and however disinterestedly scientific in their origin and spirit, will meet but 'little approval' from the men or classes whose interests or prejudices they may happen to antagonize.

E. T. PETERS.

Washington, D.C., Sept. 9.

An electric log.

In May, 1882, I sailed from Marseilles for the Piræus on the steamship *Ava*; Capt. Aug. Bretel, of the Compagnie des messageries maritimes, commanding. A short time after going aboard, I noticed a small rope running through the saloon over the cabin doors to the after skylight, and thence along the side of the ship to the stern, where it was made fast. The next day I saw the captain and the first officer looking at a curious instrument, which looked something like an aerometer, except that the cups revolved in a vertical position. This instrument was fastened to the rope which I have mentioned, and thrown overboard, the captain meanwhile watching the revolutions of the wheel through a powerful field-glass. As it did not seem to work satisfactorily, it was hauled in; and I noticed that the captain, in making some repairs to the rope, used a stick of Chatterton's compound. This led me to believe that there was a copper conductor in it, and that electricity in some form was being employed. There was no opportunity at that time to make inquiries; but a few days later the captain kindly permitted me to see the instrument, which he called a 'loch-moulinet,' or 'electrical-mill-log.' After throwing it again into the water, he took me forward and showed me the earth connection, which was soldered fast to one of the iron beams of the ship. Thence the wire went through the chart-room to the wheel-house, where there was a telephone. This electric log, it seems, was the joint invention of Capt. G. Fleuriat and Bretel, and was so arranged, that, when connected with the cable, it formed part of an electric circuit, which was opened and closed with every revolution of the copper shaft to which the four cups or hemispheres were attached. The number of revolutions made by the shaft in a given time was of course dependent upon the speed with which the cups were dragged through the water; in other words, regulated by the rate of motion at which the ship was moving. A table had been prepared by the inventors, showing the number of knots per hour corresponding to the number of revolutions of the shaft in a half-minute. On placing the log and telephone, so arranged that it could be switched, in circuit, every revolution of the shaft, and consequent closing of the circuit, caused a click, plainly audible to any one listening at the telephone. The log having been allowed to run out to such a distance as to be practically free from the influence of the screw, I listened